

CLAIMS

1. Dispenser pump (1, 1', 1'', 1''') for the drip-free dispensing of metered amounts of liquid to paste-like products from containers such as bottles (26), canisters, or tubes, consisting of

-- a lower pump part (6, 6', 6''), which is equipped with a suction opening (4) and is designed to be fastened in the opening of a container (5), where the suction opening (4) is brought into contact with the product by means of, for example, a tube (21); and

-- an upper pump part (8, 8', 8''), which has a movable hood (10, 10', 10'') and is designed to draw the product through the suction opening (4) of the lower pump part (6) into a suction chamber (14, 14', 14'') and to discharge the product from this suction chamber (14, 14', 14'') through a discharge channel (3) with an applicator opening (24).

characterized in that

- a one-piece, elastic valve disk (7), formed without through-openings, lies in a "floating" manner, i.e., flat and unfastened, on the suction opening (4) of the upper pump part (6, 6', 6'') and thus forms the bottom end of the suction

chamber (14, 14', 14'');

- the bottom opening (2) of lower discharge channel part (3') extends all the way down to the center of the valve disk (7); and
- when the movement of the hood (10, 10', 10'') causes the center part of the valve disk (7) to bulge up and down, the disk alternately opens and closes the centrally located bottom opening (2) of the discharge channel part (3), whereas conversely the outer edge area (25) of the disk undergoes deformation simultaneously to close and open the suction opening (4) of the lower pump part (6, 6', 6'').

2. Dispenser pump (1, 1', 1'', 1''') according to Claim 1, characterized in that the elastic valve disk (7) is made out of a thermoplastic elastomer.

3. Dispenser pump (1, 1', 1'', 1''') according to Claim 1, characterized in that the elastic valve disk (7) is made out of rubber.

4. Dispenser pump (1, 1', 1'', 1''') according to Claim 1, Claim 2, or Claim 3, characterized in that the elastic valve disk (7) is designed with bellows-like corrugations (22) in its outer edge area (25).

5. Dispenser pump (1, 1', 1'', 1''') according to Claim 1, Claim 2, Claim 3, or Claim 4, characterized in that a section of the upper discharge channel part (3'') is angled, so that the applicator opening (24) can extend laterally out from the upper pump part (8, 8', 8'').

6. Dispenser pump (1, 1') according to one or more of Claims 1-5, characterized in that the upper pump part (8) is connected to the lower pump part (6) by way of the container (26), where the lower pump part (6) is pressed into the container opening (5) to form a seal, whereas the upper pump part (8) is connected to the container (26) by means of a force-fit or screw connection; where the discharge channel (3) is a discharge tube (3), which is molded permanently into the upper pump part (8); and where, above the upper angled discharge channel part (3''), an axially deformable hood (10), made of elastic material such as a thermoplastic elastomer, is attached to an upper edge (9) of the upper pump part (8) to form a seal.

7. Dispenser pump (1, 1') according to Claim 6, characterized in that a stop (13) is provided on the upper inside surface of the hood (10), above the angled dispenser channel part (3''), to limit the axial displacement of the hood (10) toward the angled discharge channel part (3'').

8. Dispenser pump (1) according to Claim 6 or Claim 7, characterized in that an axially movable safety cap (18) is mounted on the upper pump part (8), where the movement of the cap in the outward direction is limited by ring beads (29, 29').

9. Dispenser pump (1') according to Claim 6 or Claim 7, characterized in that the upper pump part (8) is connected by a hinge (11) to a swinging cover (12).

10. Dispenser pump (1'', 1''') according to one or more of Claims 1-5, characterized in that the upper pump part (8', 8'') is designed with freedom of axial movement with respect to the lower pump part (6, 6''), which surrounds the lower area of the upper pump part (8', 8''), so that the upper discharge channel part (3'') and the hood (10', 10''), both of which are components of the upper pump part (8', 8''), are also free to move axially, whereas the lower discharge channel part (3'), which is a component of the lower pump part (6', 6''), remains rigidly connected to the container and thus remains stationary together with the lower pump part when the pump is in use.

11. Dispenser pump (1'', 1''') according to Claim 10, characterized in that the suction chamber (14', 14'') is designed in the manner of a piston pump as an annular space with a ring piston (32, 42), where the stationary annular space

surrounds in circular fashion the lower discharge channel part (3'), whereas the ring piston (32, 42) is connected to the upper discharge channel part (3'') and is free to slide back and forth inside the annular space over the lower discharge channel part (3').

12. Dispenser pump (1'', 1''') according to Claim 10 or Claim 11, characterized in that a restoring spring (33, 43), which is supported against the lower pump part (6', 6''), is provided inside the upper pump part (8', 8'') to return the axially movable upper pump part (8', 8'') to its starting position upon completion of the dispensing process.

13. Dispenser pump (1'') according to Claim 12, characterized in that the restoring spring (33) is installed inside the discharge channel (3).

14. Dispenser pump (1''') according to Claim 12, characterized in that the restoring spring (43) is installed outside the discharge channel (3) and the suction chamber (51).